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PACIFIC ISLANDS HERPETOLOGY NO. III MOROTAI ISLAND⁽¹⁾

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The Herpetology of Morotai Island has been neglected. Prior to World War II few collections were made on this island which has resulted in relatively few reptiles being reported from it. This, the third paper on the Pacific Islands Herpetology⁽²⁾, is a report on a collection made on Morotai Island by Ernest Reimtschüssel while he was stationed there as a member of the United States Armed Forces.

Moroati, the most northern island of the Moluccas or Spice Islands, is about 11 miles northeast of the northern end of Halmahera and is about 40 by 23 miles in extent. It is located approximately between 1°59' north latitude and 128°30' east longitude, and has a rather high elevation throughout the island. "The highest point of the island has an elevation of 4,101 feet and is one of the summits of the Sabatai Range, which stretches across the island in a northeast direction. On the river banks and on the flat southwestern part of the island are forests of sago trees and in the interior are dammar forests. It is frequented by people who collect dammar gum and also fish among the islands off the west coast. Along the coast are a number of villages. The northwest coast of the island between Tanjongs Wajaboela and Padangi, a distance of 24½ miles, is steep, and vessels can navigate rather close inshore, bearing in mind that a narrow coast reef exists in places. Along this coast are many mountain tops, but as they have no distinctive features, they are not of much use as landmarks. Anchor-

(1) Contribution No. 121. Dept. of Zoology and Entomology.

(2) *The Great Basin Naturalist*, Vol. IX, Nos. 1-2, pp. 1-20, Figs. 1-7, 1948; Nos. 3-4, pp. 25-41, 1949.

age can be found most anywhere along this coast, but depths are great. One may find anchorage in $11\frac{1}{2}$ fathoms off the village of Tjio, ten miles northeast of Tanjong Wajaboela. Telok Sopi, the bay between Tanjongs Padangi and Sopi, offers good anchorage during favorable winds. Near the east coast a ridge of more or less conspicuous hills rises to heights of 900 to 1610 feet. Back of them are the higher Sabatai Mountains. Along the south coast between Tanjongs Posi Posi and Gila, a distance of twenty miles, the coast reef is steep. Sabatai Village, $8\frac{1}{2}$ miles west of Sangowo, is located at the mouth of the river of the same name, which can be navigated by proas. The west coast of Morotai between Tanjongs Gila and Wajaboela, a distance of 18 miles, is fronted by numerous shoals, reefs, and islets, which lie up to five miles off shore. Tanjong Gila is a low, wooded tongue of land. Rao Island off the west coast of Morotai, has a mountain range along its eastern side. Its highest summit, with an elevation of 1,558 feet, is conical in appearance when seen from the southwestward. Rao Island is separated from Morotai by Rao Strait which is a little over a mile wide at its nearest part. Morotai Strait, the deep passage between the northern end of Halmahera and the islets and reefs of the west coast of Morotai, is $6\frac{1}{2}$ miles wide, clear and easily navigated."⁽³⁾

The climate is characterized by an abundance of rain, winds which make for high seas, and rollers from the southeast and northeast, a rather uniform temperature of about 78° which does not vary more than a degree or two during the year, and a high humidity. Heavy showers from the south-southeast occur during the middle of the south monsoon. They come up about the middle of the forenoon without any warning.

The population is sparse, consisting in the main of natives who assist in the production of copra, nutmeg, cloves, sago, dammar gum, cajuput oil and valuable timber.

During World War II Morotai was one of the important airfield bases in a chain of fields from Australia to Manila. Mr. Reimschuessel was among some of the first of the United States armed forces to go onto this island in October, 1944. During his six months stay on the island he collected the reptiles which serve as a basis for this report. All the specimens were taken within a radius of three miles of the Pitu Airfield. (See accompanying map). Drs. Nelly de Rooij, 1915, and P. N. Van Kampen, 1923, report a total of eight species of amphibians and reptiles as occurring on Morotai. More recent reports by Stern-

(3) Sailing Directions for New Guinea and the Islands eastward of Celebes and Timor, 3rd Ed., 1936; U. S. Printing Office, Washington, D. C., pp. 85-89

feld, 1921; Parker, 1925; Kopstein, 1926; Mertens, 1930; and Brongersma, 1933, have added to this list. In this study I have reported thirty-one species as occurring on the island.

Twenty-three lizards are recorded, the majority of which are Scincids, thus Papuan and Australian in their affinities. Those with Malayan background are: *Hemidactylus frenatus*; *Calotes cristatellus*, and *Mabuya m. multifasciatus*.

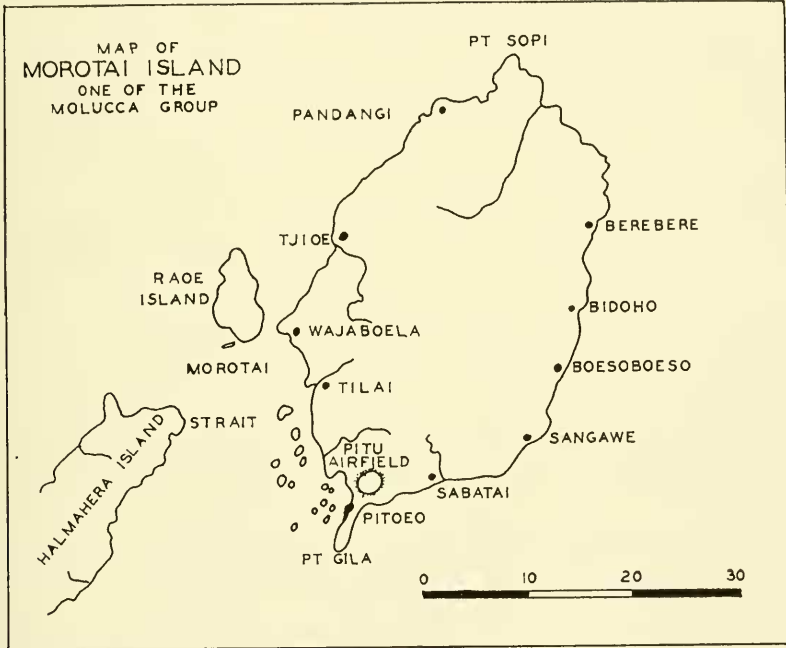


Fig. 1. Map of Morotai Island. Taken from Newsmag, Army Information Branch, September 25, 1944, Vol. III, No. 23F.

Six species of snakes are included in this list; two are endemic to the Spice Islands, and the other four are distributed southward. The two species of amphibians, *Hyla i. infrafrenata* and *Rana p. papua* range south of the once much-discussed Wallace line.

The Saurian fauna of Morotai is very similar to that of Halmahera, which is Papuan in the main. This is no doubt due to the close proximity of Morotai to Halmahera.

MR. REIMSCHISSEL'S COLLECTING ACTIVITIES

Soon after Reimschissel began collecting on Morotai Island I wrote to him inquiring as to his facilities and time available to

carry on a collecting program. Under date of December 27, 1944, I received the following letter. This I am reproducing here since it contains some valuable observations and information as to conditions under which the specimens in this report were collected:

"For the past month I have been very fortunate in that my work amounts to only afternoon shifts. The mornings have been free; here is the way I have spent some forenoons: Today I left at seven-fifteen for a trip. Dressed in a complete uniform for protection against mosquitoes, mites, etc. Over my shoulder I hung a bag with killing jars, empty containers — match boxes for the collecting of Molds for Dr. Martin. A weapon found some time previously, a sawed-off carbine which has been nicknamed "blunderbuss" I placed in the bag. It comes in very handy too. Along with these goes a hunting knife at my side and of course the net. The roads are muddy and wet because of the past rains, upon my arrival the country was very arid for a month. Now our shoes get heavy and pant legs wet, but that is something else.

At another unit I met a friend also interested in collecting. He has sent his collections to the Chicago Museum. A ravine was our destination. The sides are very steep with coral walls on either side, only here and there are breaks where one can go to the top, about 100 feet up. In the bottom is a muddy river — can't say river, for the water is stagnant, only runs when heavy rains fall. Grass and all sorts of vegetation is growing here, even on the coral rock up the sides. Fish are in the water, a few dragonflies sift the air. Birds are everywhere mainly parrots, owls and others that I cannot name. One in particular looks like a black hen, creeps on the ground or jumps from tree to tree seldom flying and not easily frightened.

We hadn't gone far before our pants were wet up to our knees with dew. All of a sudden I heard a loud noise. From my previous experience I thought it must be a lizard so after it I went. The large ones have a habit of making a noise when we are a few paces away, then stopping, and sometimes sneaking off if one is too close. Today it stood still and I could just make out its form against the green background. I pulled out the old blunderbuss which had no front sight, and shot. The reptile flinched; I with joy and excitement started to go toward it, but hesitated and shot again, fingers somewhat nervous. I knew definitely my aim was good for the object keeled over and lay still.

The animal was on the other side of the stream, now to cross it. It was too wide to jump so I had to start up the stream to find a place to cross. Shortly I came to a large limb which would bear my weight.

The other edge was filled with vegetation but I managed to get my object. To my surprise the second shot was the only one taking effect, right through both eyes (just a trifle below them). Picking it up, I started back with the prize to show it to my companion, my thoughts being that the morning was worthwhile though only eight o'clock.

We marched further up the stream, can't go too far for there is still a perimeter carefully watched. A tree along the way which had been scarred contained a number of long brown weevil (with yellow stripe, lengthwise) also many small bees were after sap. At the base was a very pretty flowering plant, which I picked up for a sketch. On we went, on the alert at all times for anything alive.

Small lizards scamper off here and there. I don't bother with these for I think enough have already been collected. But a funny looking one appears on the edge of the stream. Upon approach it skips across the water, getting close, dives under. It has a large tail, appears as tho it has but two legs — don't know yet. It bothered me, for it's the third of its kind that has escaped.

The ravine takes a sharp curve. A number of trees have been felled and some pushed in from the top where construction work goes on. On one tree in particular are many long-horned beetles, black with white stripe along their backs, also a few weevils and a green tree boring beetle. We stopped and collected as many as possible.

The water had disappeared, only here and there are a few holes that are still filled. I found a small frog, previously they had eluded me. Many large well-decayed logs are across the main stream bed, here the orange-black tiger beetles abound. The small very light brown tailed lizard is everywhere, species no. 21. It is so fast and agile that one can't catch it. Many twigs, roots and plants get in one's way. I was fortunate to get one good specimen from another area. Under the logs are molds and others of the fungi family, today in particular I gathered many not previously seen. Fortune seems with me. My mind doesn't think of the work at hand, just that of collecting and sending the material.

I climbed to the top of the ravine, for a bulldozer was at hand and I'm still looking for worm snakes, with no success for it has finished this work, but a small puddle of water 20' wide had dragon flies around it, so I stopped here and caught some.

My companion and I got separated so I went down into the ravine and found him still catching beetles from the large dead tree. I suggested that we go back for it was now ten-thirty, but he stayed a while longer for his luck was good. Returning I glanced at a spray of orchid

flowers. I'll get them another day for they are in bloom. Fellows spotting the lizard ask what it was. I myself don't know. It is just a large reptile to me, probably an iguana. Even the C. O. and others of our unit looked at my specimen. (This is a specimen of *Lophura weberi* Barbour, BYU 7745. — Writer's note.)

Now comes the job of getting a container large enough. It usually has been that when I have containers, no formalin is at hand, when both, no specimens. I've even gone thru many a garbage can, picked up a small bottle, even ink bottles. I was stumped. I walked into the E. M. mess hall, checked and found nothing there, not even a can with a decent lid. I checked the officers, nothing. I saw the paint shop and an idea struck — why not use a gallon paint can. Sure enough, again visiting the nearby dump, I emerge with a can and lid.

It took another half hour or so to clean it up, and I am still wondering if it's big enough. Yes, it will do. Fortunately a pint of formalin is at hand so preparations are in order.

That is one day's work — that is after I've done four hours of my regular duty. I've spent anywhere from twelve to twenty hours out in the field during the week. This does not count the rest of the time spent in sketching or writing up notes on other days or evenings.

I'm a person who likes to keep busy and I find great enjoyment in getting out, away from seeing men all the time. One can get much repose just from nature. I'm also hoping that some of my efforts will prove useful to the University and the development of science — tho they are meager."

LIST OF AMPHIBIANS AND REPTILES CONSIDERED IN THIS PAPER

AMPHIBIANS

Family HYLIDAE

HYLA INFRAFRENATA INFRAFRENATA GUNTHER

Gunther, Ann. Mag. Nat. Hist., (3) XX, 1867, p. 56.

BYU 7490, 7608, 7641 Morotai (E. Reimschuessel) December, 1944
BYU 7730, 7871 Morotai (E. Reimschuessel) January, 1945

Head as long as broad; nostril nearer the tip of the snout than the eye, tympanum oblong, 6 mm. long; mouth large, 30 mm. wide; tongue free behind, small notch in front; vomerine teeth large and in two series on the posterior borders of the choanae; eyes prominent, 9.5 mm. in diameter; disks of the fingers larger than those of the toes;

third finger with a disk 7 mm. in diameter, fingers webbed about one half; toes almost entirely webbed. Body length 96 mm.; leg length 166 mm. Specimen BYU 7608 ♂ dorsal color bluish violet (grass-green in life); a white line along border of lower lip; white line on inner margin of tibia; ventral color whitish, belly and legs coarsely granulate. The male has a well-developed vocal sac inside which is the sharp pointed ossified omosternum.

Reimschiüssel reports this species as "barking like a dog, having a golden-colored eyes, long hind legs, and being a bright green color." He collected about 20 tadpoles and some eggs of this species.

Family RANIDAE

RANA PAPUA PAPUA LESSON

Lesson, Voyage Coquille, Zool., II, 1, 1830, p. 59, pl. III, fig. 1.

BYU 7606, 7739 Morotai (E. Reimschiüssel) January, 1945
BYU 7768, 7891 Morotai (E. Reimschiüssel) February, 1945

Head longer than broad (25 mm. by 21 mm.); snout pointed and projecting; canthus rostralis forming an angle; loreal area concave and vertical; nostril nearer the tip of snout than to the eye; tympanum large, 6 mm. in diameter, and in a concavity which extends backward from the eye; first and third fingers longest, disks of fingers smaller than those on the toes; third and fifth toes equal in length; toes entirely webbed. Specimen BYU 7606 a ♀ filled with eggs, has a body length of 68 mm., and a hind leg length of 127 mm.; smooth above, with a dorsolateral fold and a glandular fold from below the tympanum back to above the foreleg.

Reimschiüssel reports these frogs in life as being slightly golden brown above, with a black streak extending back over the eye and tympanum to above the front leg; hind legs with four dark cross bars, legs darker brown than the back; ventral surface with brown mottling on the throat and under parts of the hind legs, on a whitish background.

LIZARDS

Family GEKKONIDAE

GYMNODACTYLUS PELAGICUS (GIRARD)

Girard, Proc. Ac. Philad. 1857, p. 197. (Heteronata)

BYU 7331, 7540 Morotai (E. Reimschiüssel) October 4, 1944

Rostral twice as broad as high; nostril bordered by the rostral, supranasal, two granules and the first upper labial; seven upper and

seven lower labials; mental large V-shaped, with a pair of small chin-shields next to the mental, posteriorly. Back with 17 longitudinal series of round, conical, ribbed tubercles, ventral scales small and keeled. The adult specimen (BYU 7540) has an angular series of 7 preanal pores.

Color brown above with blackish transverse bands; ventral dark brown; labial sutures whitish.

Found, according to Reimschiüssel, in dark places during the day, under logs and coconut bark.

HEMIDACTYLUS FRENATUS DUM. AND BIBR.

Dumeril and Bibron, Ext. Gen. 3, 1836, p. 366.

BYU 7368-7371, 7385	Morotai	(E. Reimschiüssel)	October, 1944
BYU 7397, 7426-7430	Morotai	(E. Reimschiüssel)	October, 1944
BYU 7432, 7526, 7541	Morotai	(E. Reimschiüssel)	December, 1944
BYU 7643, 7670, 7674	Morotai	(E. Reimschiüssel)	December, 1944
BYU 7740, 7823,	Morotai	(E. Reimschiüssel)	January, 1945

Rostral one time and one half as broad as high; nostril bordered by the rostral, and three nasals; in none of the above specimens is the first labial in contact with the nostril; ten to eleven upper and eight to ten lower labials; well developed teeth on both lower and upper jaws; two pair of chin-shields, the first pair in contact behind the mental; back with small granular scales and two to eight longitudinal rows of conical tubercles; ventral scales large and imbricate; tail slightly flattened with dorsal and lateral rows of enlarged flattish conical scales; under surface with a row of enlarged imbricate scales; digits dilated, free, claw dorsal; 7 to 8 lamellae on the fourth finger and 9 to 10 lamellae on the fourth toe; twenty-eight to thirty-two preanal pores.

Color light brown above with some darker blotches along the back and sides; venter lighter, but without markings.

This species was common throughout the area of occupation on Morotai. It is a widely distributed species through the South Pacific Islands.

GEHYRA OCEANICA (LESSON)

Lesson, Voyage Coquille, Zool. II, I, 1830, p. 42, pl. II, fig. 3.

BYU 7317-18 Morotai (E. Reimschiüssel) November, 1944

Rostral not twice as broad as high; nostril surrounded by the rostral, supralabial and four supranasals. There are thirteen upper labials and twelve to thirteen lower labials; digits only slightly webbed at the base; thirteen lamellae on the fourth finger and fourteen lamellae on the fourth toe.

Body more slender not as robust as *G. marginata*. Light brown in color with same blotching on the dorsal portions of the legs; venter practically white.

GEHYRA MARGINATA BOULENGER

Boulenger, Cat. Liz. III 1887, p. 486.

BYU 7441 Morotai (E. Reimschiessel) November, 1944
BYU 7870 Morotai (E. Reimschiessel) February, 1945

Rostral twice as broad as high, the center supranasal entering the emargination of the rostral; nostril bordered by the rostral, first supra-labial, and four supranasals, the first one the largest; fifteen upper and lower labials; mental about twice as wide as the first lower labial, in contact with the latter and a pair of chin-shields; twenty-four lamellae on the fourth toe and also the fourth finger; the digits, partly webbed.

Dark brown in color with no noticeable markings, very tender skin, readily broken, thus damaging the specimens. Body length 109 mm., tail length 94 mm. Body width just back of front legs 25mm. Specimen BYU 7870 was collected on the trunk of a sago palm, February 9, 1945.

LEPIDODACTYLUS LUGUBRIS (DUM. AND BIBR.)

Dumeril and Bibron, Erp. Gen. III, 1836, p. 304.

BYU 7394, 7431 Morotai (E. Reimschiessel) November, 1944
BYU 7668, 7671 Morotai (E. Reimschiessel) January, 1945
BYU 7673, 7675 Morotai (E. Reimschiessel) February, 1945
BYU 7676-7679 Morotai (E. Reimschiessel) February, 1945

Head long and narrow; ear-opening nearer the eye than the nostril; rostral broader than high; nostril surrounded by the rostral, first upper labial, and two supranasals; eleven to thirteen upper and lower labials; mental smaller than the contiguous lower labials; four to five rows of small chin-shields; twenty-seven to twenty-nine femoral pores on males; digits only slightly webbed; 13 to 15 lamellae on fourth toe and 12 to 14 lamellae on the fourth finger. Body length 40 mm., tail, 34 mm. Color light grey or brown with irregular small blackish pigmented areas; venter white to pinkish.

Mr. Reimschiessel reports that this is a common species on the Island, and that it lays eggs on the grass near the camp.

GEKKO VITTATUS HOUTTUYN

Houttuyn, Verh. Genootsch. Velissingen IX, 1782, p. 325.

BYU 7344, 7345 Morotai (E. Reimschiessel) October, 1944
BYU 7376-7378 Morotai (E. Reimschiessel) November, 1944
BYU 7386, 7390 Morotai (E. Reimschiessel) November, 1944

BYU 7391, 7440	Morotai	(E. Reimschiissel)	December, 1944
BYU 7485-7486	Morotai	(E. Reimschiissel)	January, 1945
BYU 7607, 7609	Morotai	(E. Reimschiissel)	January, 1945
BYU 7642, 7716	Morotai	(E. Reimschiissel)	January, 1945
BYU 7717-7722	Morotai	(E. Reimschiissel)	January, 1945
BYU 7765-7767	Morotai	(E. Reimschiissel)	January, 1945
BYU 7769, 7771	Morotai	(E. Reimschiissel)	February, 1945
BYU 7795-7815	Morotai	(E. Reimschiissel)	February, 1945
BYU 7872-7874	Morotai	(E. Reimschiissel)	February, 1945
BYU 7876, 7878-79	Morotai	(E. Reimschiissel)	February, 1945

Head average 24 mm. long from the large round ear opening to rostral tip; 17 mm. wide just in front of ear; rostral wider than high; nostril bordered by rostral, first upper labial and three supranasals; fourteen to sixteen upper labials; thirteen to sixteen lower labials; mental about the size of the second lower labial and in contact with the small chin-shields. Males with 47 to 56 praeanal pores. Digits with rudimentary webbing, fourth toe with 20 to 25 undivided lamellae; finger with 20 to 22 lamellae.

Preserved specimens greyish-brown above, with a white dorsal line which forks in the nuchal area and extends to each eye. Tail with four to seven white bands. In young specimens the white markings on the back of the tail are very noticeable.

Mr. Reimschiissel made a drawing of many of the lizards of this area and recorded his observations on the live specimens. Concerning this species he wrote the following:

"Specimens are found on palm trees, sago, nipa, coconut, also on building walls and ceilings. It is seven to eight inches long, large head, wide mouth; eyes, grey-brown, retina black, broken pupil, with eyelids brown veined. Skin, soft leathery brown, with small orange brown warts on back, scales tan brown on abdomen and under side of legs. An orange yellow line runs from the hind legs to head, dividing at head, forks running to the eyes. Tail colored, in seven concentric segments, white and brown; new tail in greenish brown and smooth, curls. Lays eggs; young with white line."

Family AGAMIDAE

CALOTES CRISTATELLUS MOLUCCANUS PETERS

Peters, Mon. Berl. Akad., 1867, p. 171.

BYU 7375, 7387	Morotai	(E. Reimschiissel)	November, 1944
BYU 7438, 7603-5	Morotai	(E. Reimschiissel)	December, 1944
BYU 7712-7715	Morotai	(E. Reimschiissel)	January, 1945
BYU 7776-7781	Morotai	(E. Reimschiissel)	February, 1945

A series of 16 well-preserved specimens, the largest ones have a total length of 369 (84 + 285) mm. The scales of the head are small

and all the scales of the body are strongly keeled. The nuchal crest scales 14 to 19; supraocular scales enlarged with an enlarged posterior patch of three or four scales, nine upper and lower labials.

Reimschiüssel reports the eye with a black pupil, golden brown retina with golden rim near pupil. Body color green dorsal, yellow to yellow-green venter; tip of mouth white. (Preserved specimens bluish-green); long slender tail, hind legs and toes long. Found on vegetation and in trees up to 125 feet in height, near the coral ledges. Egg long and pointed at each end; like a frog in that they jump and have a large fleshy tongue.

The Morotai population may be considered as a race of *crisatellus*. However, I am unable to distinguish them from specimens from other areas with which I have compared them.

LOPHURA WEBERI (BARBOUR)

Barbour, Proc. Biol. Soc. Wash. XXIV 1911, p. 20.

BYU 7745 Morotai (E. Reimschiüssel) December 13, 1944

Snout with enlarged keeled scales, between the nostrils; distance of the round nostril from the anterior border of the eye three times the diameter of the tympanum; ten upper and ten lower labials; a row of 8 large scales on one side and seven on the other run parallel with the labials from the large triangular mental to a point below the middle of the eye; nuchal and dorsal crests interrupted; along each side of the body are seven groups of larger round keeled scales, six rows of large strongly keeled scales on the upper surface of the forelimbs; pores sixteen on one side and fourteen on the other. Length of specimen when killed 37 inches.

Mr. Reimschiüssel shot this specimen through the eyes at about forty paces with his "blunderbuss." After preserving it with formalin he shipped it to me in a gallon paint can. It arrived in excellent condition. Before being preserved it was green under the throat and abdomen and extending upon the side of the body. Digestive tract was filled with plant leaves.

By using Barbour's original description of *weberi* and his drawings, 1912, pl. 4, I am convinced that the specimen before me should be referred to this species. It is a new record for Morotai.

Family VARANIDAE

VARANUS INDICUS (DAUDIN)

Daudin, Rept. III 1802, p. 46, pl. XXX.

BYU 7477 Morotai (E. Reimschiüssel) December 19, 1944

A well-preserved specimen of this species was collected on December 19, 1944, by Mr. Reimschüssel. The following are his notes on this specimen: "Thirty-two and one-half inches long; found on a log at edge of stream in a ravine. Scales are small, in rings around the body, most of them are black, but here and there are blotches of yellow green ones. Pupil black, brown retina. Long slender toes, tail long and flattened. Contained a crab in an enlarged part of the intestine, also egg sacks on each side of the body with round eggs of various sizes. Liver large, tongue long and forked.

This species is widely distributed southward in New Guinea, Admiralty Islands and the Solomons. Reimschüssel collected other specimens of this species but was unable to preserve and ship them.

Family SCINCIDAE

TILQUA SCINCOIDES GIGAS (SCHNEIDER)

Schneider, Hist. Amph. II 1801, p. 22.

BYU 7396 Morotai (E. Reimschüssel) October 4, 1944

Rostral one time and one-half as broad as high, in contact with the nasal, frontonasal and first upper labial; nostril in the nasal, no supranasals; frontonasal in narrow contact with the rostral; praefrontals in contact; frontal longer than broad, (13 mm.) longer than parietals (10 mm.) and in contact with the anterior two supraoculars; supraoculars 4; supracliaries 4; forearm 48 mm.; head length 45 mm., axilla to groin 124 mm.; 3 anterior temporals; eyelids scaly, eye opening about as large as the ear opening, which is shielded by the large anterior lobules. Seven upper and eight to ten lower labials; mental twice as broad as high in contact with the first lower labial and the first large transverse chin-shield, which is in contact with two lower labials on one side, and three on the other. Dorsal scales slightly keeled, in 31 rows around the middle of the body. Fingers and toes short, with claws. Adult length 353 (190+163) mm. Scales on tail similar to those on the body. Seven dark bands around the body and twelve bands around the tail.

The general facies of this species, the measurements, scalation and color lead me to question the soundness of considering *gigas* as a subspecies of *scincoides*. (Loveridge, 1948, p. 339, and Mitchell, 1950, p. 295). I am inclined to believe that a larger series of specimens from the northern Moluccas may justify this conclusion.

Reimschüssel reports that this species makes a hissing noise like a goose.

MABUYA MULTIFASCIATA MULTIFASCIATA (KUHLE)

Kuhl. Beitr. Zool. Und Vergl. Anat. 1820, p. 126. (Scincus)

BYU 7379, 7437	Morotai	(E. Reimschüssel)	October, 1944
BYU 7442, 7487	Morotai	(E. Reimschüssel)	November, 1944
BYU 7488, 7489	Morotai	(E. Reimschüssel)	December, 1944
BYU 7593, 7663	Morotai	(E. Reimschüssel)	January, 1945
BYU 7664, 7672	Morotai	(E. Reimschüssel)	January, 1945
BYU 7786, 7818	Morotai	(E. Reimschüssel)	February, 1945

Rostral in contact with the first upper labials, nasal, supranasals and frontonasal; frontal as long as the frontoparietals and interparietal together; four supraoculars, second larger; a pair of keeled nuchals, six upper labials, the fifth the largest and below the eye; seven lower labials, the first two in contact with the large transverse chin-shield; ear large and round, farther removed from the eye than the nostril; 30-33 scale rows around the middle of the body, dorsal scales with 3-5 keels, ventral ones smooth. fourth toe with 15-17 undivided scales, fourth finger 12-13 scales. Color uniform brownish above, pinkish white on venter. Length of specimens 290 mm. to 360 mm.

Common in the area where Reimschüssel collected; a widely distributed species.

DASIA SMARAGDINUM MOLUCCARUM BARBOUR

Barbour, Proc. Biol. Soc. Wash. 24, 1911, p. 17.

BYU 7356, 7357	Morotai	(E. Reimschüssel)	October, 1944
BYU 7372, 7373	Morotai	(E. Reimschüssel)	November, 1944
BYU 7374, 7434	Morotai	(E. Reimschüssel)	December, 1944
BYU 7631, 7640	Morotai	(E. Reimschüssel)	January, 1945
BYU 7645-7649	Morotai	(E. Reimschüssel)	January, 1945
BYU 7661	Morotai	(E. Reimschüssel)	January, 1945

Rostral not twice as broad as high, in contact with the first labial, nasal and frontonasal; nostril in the nasal; no supranasals; two prae-frontals; frontal as long as the frontoparietal and parietal together; four supraoculars; one to three pairs of nuchals and a pair of larger temporals; five to six upper labials before the subocular; seven to eight lower labials. Ear small and slightly oblong with one or two guard scales; ear farther removed from the eye than the nostril is; lower eyelid scaly. Mental about as broad as the rostral; first large chin-shield in contact with the mental and first two or three lower labials. Twenty to twenty-four scale rows around the middle of the body; dorsal scales faintly keeled, ventral scales smooth. Fourth toe with 28-33 lamellae. Heel with a large oval scale. Greyish-brown above, some specimens with a greenish-blue on the shoulders and neck region, with four to five dorsal rows of black spots, and on some specimens

these spots are preceded by light bluish ones. Ventral parts yellowish to white. Body length 53-84 mm.; tail length 70-116 mm.

In making a study of this and other species of this paper, I have obtained much help from Prof. Loveridge's recent excellent paper, 1948, on "New Guinean Reptiles and Amphibians in the Museum of Comparative Zoology and United States National Museum." In my previous paper, 1949, in which I dealt with specimens of *Dasia* from Cebu and Leyte Islands I considered them as *s. smaragdinum* (Lesson). Loveridge's study suggests that the species of this genus should be placed as follows: the grey spotted specimens from the Philippine Islands and Morotai may be known as *D. s. philippinicum* and *D. s. moluccarum*, respectively; while the greenish (blue in preservative) specimens from the Admiralty Islands may be considered as *D. s. pervirides*. This is only a tentative arrangement since this complex is in need of more study as pointed out by Loveridge.

RIOPA MENTOVARIUM (BOETTGER)

Boettger, Zool. Anz. XVIII 1859, p. 119, Figs. I & II.

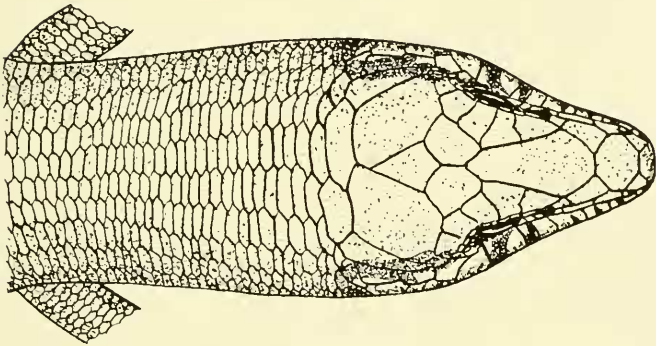
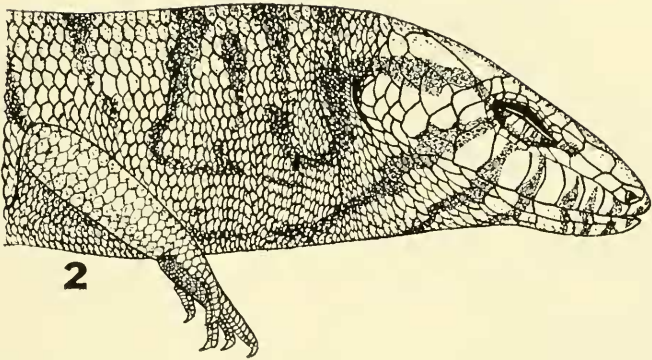
BYU 7433, 7439 Morotai (E. Reimschiessel) October, 1944

BYU 7539, 7785 Morotai (E. Reimschiessel) December, 1944

Rostral not twice as broad as high, (5-3 mm.); nostril between the nasal and the supranasal; frontonasal broader than long, contact narrow with the rostral and broader with the frontal; praefrontals small and widely separated; frontal about as long as the frontoparietal and parietal together; frontal in contact with two anterior supraoculars, 8 supraciliaries; lower eyelid scaly; parietals large and in contact behind; ear opening small, with five guard scales; upper labials eight, sixth largest and below the eye, but separated by a row of small scales; lower labials six to seven; mental large, first chin-shield in contact with the first two lower labials. Body scales smooth, 32 to 36 around the middle of the body, 24 lamellae on the fourth toe. Total length 275 mm. (130 + 145).

Brown above with seven to nine transverse crossbands and longitudinal dark lines due to the coloration of the scales. Six dark bands, which have their origin in the upper and lower labials, extend at an angle on to the throat region; five to seven dark bands back of the ear.

The figures 2 and 3 are dorsal and lateral drawings of specimen BYU 7785. These set forth the scalation and color pattern of this species. Reimschiessel described the color of live specimens as "light greenish brown above with dark stripes around the thorax and stripes diagonally from the mouth to the neck; other parts of abdomen nearly white."



Figs. 2 and 3. *Riofa mentovarium* (Boettger).
Side and dorsal view of head. 2x.

LYGOSOMA GRAY

(Gray, Zool. Jour. III, p. 228, 1827)

This genus is widely distributed in the tropical and semi-tropical countries and is especially rich in species in the South Pacific Islands.

For convenience the genus is divided into sections. The following sections are represented in the Morotai species before me:

- I. Lower eyelid scaly.
 - A. Limbs well developed.
 - 1. No supranasals; tympanum distinct;
praeanales enlarged—(Hinuia) Sphenomorphus
 - B. Limbs short, or rudimentary, or absent.

- I. Limbs short; no supranasals; ear opening distinct; praefrontals small and separated; frontal broader than supraccular regionLygosoma
- II. Lower eyelid with a transparent disk; Limbs well developed.
- A. No supranasals; tympanum distinct; enlarged nuchals present.....Leiolopisma

Section SPHENOMORPHUS

LYGOSOMA (SPHENOMORPHUS) VARIEGATUM JOBIENSE MEYER
Meyer, Mon. Berl. Ac. 1874, p. 131.

BYU 7313 Morotai (E. Reimschiüssel) October, 1944

Lower eyelid scaly; nostril in the nasal; no supranasals; rostral long and rounded behind; praefrontals forming a suture; frontal as long as frontoparietals and interparietal together, in contact with the anterior three of the seven supraoculars; ten to eleven upper and eight lower labials; ear opening oblong and large, without guard scales; mental and first chin-shield large. Body scales smooth, forty-two around the middle of the body; fourth toe with twenty-seven lamellae. Body length 103 (41 + 62) mm. Glossy brown above, with large black blotches behind the ear and extending behind the shoulder, under surface whitish.

Loveridge, 1948, p. 343, has a key to the subspecies of *variegatum* found in New Guinea.

LYGOSOMA (SPHENOMORPHUS) CONSOBRINUM CONSOBRINUM
PETERS AND DORIA

Peters and Doria, Ann. Mus. Civ. Genova, XIII, 1878, p. 342.

BYU 7598-7600, 7735 Morotai (E. Reimschiüssel) January, 1945

BYU 7742, 7789, 8896 Morotai (E. Reimschiüssel) February, 1945

Rostral about twice as broad as high; contact with frontonasal narrow; nostril in nasal; single anterior loreal; no suparnasals; praefrontals in contact; frontal long and pointed, in contact with anterior two supraoculars; 6 supraciliaries, 4 supraoculars; 7 upper and 7 lower labials. Ear opening round, no lobules; eyelid scaly; first chin-shield in contact with the mental and first and second lower labials. 32 rows of scales at middle of body; 20 lamellae on the fourth toe. Total length BYU 8896, 91 (34 + 57) mm.

Light brown on the dorsal 4 to 5 rows, bordered with 3 to 4 rows of black scales; ventral body and tail with pinkish areas on some specimens.

LYGOSOMA (SPHENOMORPHUS) MINUTUM MEYER

Meyer, Monatsb. Akad. Wiss. Berlin, 1874, p. 132.

BYU 7733, 7736 Morotai (E. Reimschiissel) January, 1945

Head pointed, ears large and round; rostral about twice as broad as high, a broad straight suture with the frontonasal; nostril in the nasal; a single small anterior loreal, no supranasal; praefrontals in contact with the frontonasal, loreals, supraciliaries, supraocular, frontal and are widely separated; supraoculars 4; supraciliaries 7; 6 upper and 5 lower labials, mental broader than wide, the first single chin-shield in contact at about the middle of the first lower labial which is as long as the two anterior upper labials. Nuchal poorly developed, only on one side; scale rows around middle of body 23; lamellae under fourth toe 17. Body length 73 (34 + 39) mm.; legs long, extended hind legs meeting front legs. Tail compressed on posterior two-thirds. Color brown with small mottling on dorsal, throat and caudal scales. Belly white. The Morotai specimens have more body scales and toe lamellae than the New Guinea ones as reported by Loveridge.

Reimschiissel reports that these two specimens were taken along with a worm snake by Lt. Hobbs. They apparently are found in the humus and litter of the top soil. This is an interesting new record for Morotai. It does not agree in every respect with descriptions of New Guinea specimens, but without more material I am referring it to Meyer's *minutum*.

Section LYGOSOMA

LYGOSOMA (LYGOSOMA) SOLOMONIS BREVIPES BOETTGER

Boettger, Zool. Anz. XVIII, 1895, p. 121.

BYU 7346-7348, 7381, 7395	Morotai	(E. Reimschiissel)	November, 1944
BYU 7398-7399, 7401, 7404	Morotai	(E. Reimschiissel)	December, 1944
BYU 7435, 7528-7538, 7588	Morotai	(E. Reimschiissel)	January, 1945
BYU 7591, 7594	Morotai	(E. Reimschiissel)	February, 1945

Lower eyelid scaly; ear opening round, smaller than the eye opening, no lobules; nostril in the nasal; no supranasals; rostral broader than high, extending between the nasals and narrowly contacting the frontal; praefrontals small and separated; frontal broader than the supraocular region, shorter than the frontoparietals and interparietal together, in contact with the first supraciliary and the two anterior supraoculars; parietals in contact; three to six pairs of nuchals. Supraoculars 4 to 5; supraciliaries 4 to 5, fifth upper labial large and below the eye, in many of the specimens the fifth labial is not separated from the eye by a scale, but the small scales are wedged in on the sides;

5 lower labials; mental broader than high; large chin-scale in contact with first, in some specimens the second lower labial; 26 (1), 27 (1), 28 (8), 29 (2) rows of scales around the body. Body long and thin, from snout to foreleg into distance between axilla and groin $1\frac{1}{2}$ times. Lamellae on the fourth finger 7 to 9, fourth toe 15 to 18; front arms and fingers small; hind legs larger, tail large, in some specimens the proximal portion has about the same diameter as the body. Body length 34 (1), 41 (1), 47 (1), 51 (1), 52 (2), 53 (2), 54 (3), 55 (1), mm.; tail length 26 (1), 43 (2), 54 (2), 57 (2), 64 (1), 72 (2), 76 (2) mm.

Color of live specimens as reported by Reimschiissel: back grey-black, mottled; throat white, abdomen white with orange, under surface tail white, upper surface light brown, scales slick and reflect light. Preserved specimens brown with black flecks of pigment along the sides and back of head, body and tail; throat and portions of the under-surface of the tail dotted with dark spots; other ventral surface light to pinkish.

Reimschiissel observed that this species was hiding during the day in trash and old sacks around the camp. It was not very active when disturbed.

I have three specimens BYU 7875, 7877, 7893, collected in January, 1945, at Hollandia, New Guinea by Mr. Reimschiissel. These were studied by Dr. Walter C. Brown along with the Morotai specimens. He is inclined to follow Loveridge, thus considering the Hollandia specimens as *L. a. schodei* Vogt. After a study of the Morotai series along with the Hollandia specimens and a large number of *Lygosoma* (*Lygosoma*) *solominis* Boulenger from Gaudalcanal, I am unable to separate *schodei* from *brevipes*. In view of Loveridge's data and conclusions and the results from the study of specimens recorded in this paper, I believe *schodei* Vogt is a synonym of *brevipes* Boettger.

Section LEIOLOPISMA

LYGOSOMA (LEIOLOPISMA) NOCTUA NOCTUA (LESSON)

Lesson, Voy. Coquille Zool. II 1830, p. 48, pl. III, Fig. 4.

BYU 7325, 7358, 7359, 7388-7389	Morotai (E. Reimschiissel)	November, 1944
BYU 7407, 7597, 7632-40, 7772	Morotai (E. Reimschiissel)	January, 1945
BYU 7801, 7822	Morotai (E. Reimschiissel)	February, 1945

Rostral broader than high, in contact with the frontonasal by a broad straight suture; nostril in the nasal; no supranasals; posterior and anterior loreals present; praefrontals separated by contact of fron-

tonasal and frontal, which is in contact with the two anterior supraoculars; frontal as long as the frontoparietal and interparietal together; interparietal large; parietals large but in contact by only a short suture; temporals medium in size; 3 to 4 pair of nuchals; ear opening oval and smaller than the lower eyelid disk, no lobules; fifth upper labial below the eye; 4 supraoculars; 8 supraciliaries; postmental longer than the mental; mid-body scales 25-26; scales smooth, dorsal ones large; lamellae under the fourth toe 22-26; total length of largest specimen BYU 7634, 106 (42 + 64) mm.; color dark brown above, with a mid-dorsal white stripe which involves parts of two rows of scales; dark bands, back to the thighs, consisting of close set dark brown spots; along the sides are many elongate spots which give a banded appearance; throat, belly, and all the surface of the tail whitish to light brown.

As to the color in life, Reimschiüssel recorded the following: A yellow mark on head connected with a yellow line to the hind legs; body black with a mottling of white on the sides and legs; eyes black; gives birth to young. Collected on an unknown palm tree.

LYGOSOMA (LEIOLOPISMA) FUSCUM FUSCUM
(DUMERIL AND BIBRON)

Dumeril and Bibron, *Erp. Gen.* V, 1839, p. 759.

BYU 7339-42, 7349, 7350-53, 7382	Morotai (E. Reimschiüssel)	October, 1944
BYU 7392-93, 7400, 7402-3, 7405-6	Morotai (E. Reimschiüssel)	November, 1944
BYU 7407, 7512-14, 7543-46, 7589	Morotai (E. Reimschiüssel)	December, 1944
BYU 7595 7620, 7622-23, 7625-27	Morotai (E. Reimschiüssel)	January, 1945
BYU 7629, 7770, 7787, 10193-10194	Morotai (E. Reimschiüssel)	January, 1945

Rostral broader than high, with a long straight suture between the frontonasal; latter broader than high; nostril in the nasal; no supranasals; frontal not longer than the frontoparietal, in contact with the two anterior supraoculars; 4 supraoculars; 7 to 8 supraciliaries; interparietal small; parietals in contact; a pair of nuchals and temporals; 4 upper labials before the subocular; 6 lower labials; submental larger than the mental; dorsal scales with two to three keels; 32-36 mid-body scale rows; 28 to 33 lamellae under the fourth toe; total length of one large specimen BYU 7412, 128 (46 + 82) mm.; average body length 45 mm., tail length 74 mm. Color dark brown above, whitish on underside in the majority of the specimens. A few have a dark streak from the eyes extending backwards along the flanks.

Reimschiissel observed that in life specimens were light brown on the body, with white abdomens in the main; some with two very light white lines from the eyes to forelegs, abdomen light in color but changing to a yellow orange at hind legs.

Mr. Walter C. Brown of Northwestern University thinks this Morotai population of *L. fuscum* may represent a new race. An examination of specimens from many of the islands of this area may throw more light upon speciation of the *fuscum* complex. Loveridge has recognized four races of *fuscum* in the New Guinea fauna. For the present, it is probably best to consider the Morotai specimens as indicated above.

LYGOSOMA (LEIOLOPISMA) NOVAEGUINEAE MEYER

Meyer, Mon. Berl. Ac. 1874, p. 132.

BYU 7343, 7354-55, 7365, 7367, 7415	Morotai (E. Reimschiissel)	October, 1944
BYU 7436, 7447, 7558-60, 7575, 7577-8	Morotai (E. Reimschiissel)	November, 1944
BYU 7582-6, 7734, 7743, 7788, 7790-98	Morotai (E. Reimschiissel)	January, 1945
BYU 7816, 7817, 7820 and 26 untagged specimens.	Morotai (E. Reimschiissel)	February, 1945

Rostral twice as broad as high, broadly in contact with the frontonasal; no supranasals; lower eyelid with a large transparent disk; ear opening round, with small anterior lobules, farther from the orbits than the nostrils; 4 supraoculars; 7 supraciliaries; frontal in contact with the two anterior supraoculars; single anterior loreal; frontoparietal single; interparietal distinct; parietals in contact; a pair of nuchals and a pair of temporals; subocular large, 6 to 7 upper and 6 lower labials; mental broad and narrow; first chin-shield in contact with first and second lower labials; lamellae under fourth toe 21-23; fingers 4, short; toes 5. Scale rows around the mid-body, 25-28.

Brown on dorsal with a lateral dark whitish edged band, lips with black bars on labials, ventral portions white with some black spots anteriorly and posteriorly. Total length 89 (34 + 55) mm. The series of 58 specimens are rather uniform in size and color.

Mr. Reimschiissel collected the above specimens in the forest debris; they are common about newly cleared areas. The New Guinea and Morotai specimens differ slightly in the number of rows of body scales and number of lamellae under the fourth toe.

EMOIA CAERULEOCAUDA REIMSCHISSELI TANNER, n. subsp.

BYU 7312, 7332-7333, 7335-8, 7409-11	Morotai (E. Reimschiissel)	October, 1944
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BYU 7416-23, 7491-99, 7500-7, 7509-25	Morotai (E. Reimschiüssel)	December, 1944
BYU 7527, 7550-3, 7556, 7567-70, 7572-3	Morotai (E. Reimschiüssel)	January, 1945
BYU 7681-2, 7684, 7686-87, 7689-96	Morotai (E. Reimschiüssel)	February, 1945
BYU 7698, 7699, 7700-11, 7725, 7880	Morotai (E. Reimschiüssel)	February, 1945

Rostral broader than high (2.8-1.5) mm., in contact with the nasal, supranasal, and frontonasal; the frontonasal contact is a straight suture, about one-half the width of the frontonasal which is broader than long. Nostril large surrounded by the nasal, supranasal and postnasal scales; praefrontals widely separated by an arching suture of the frontonasal with the frontal, praefrontals shorter than the frontal; frontal as long as the frontoparietal plate; interparietal present in 11.5 per cent, partially separated from the frontoparietal in 21 per cent, and absent in 67.5 of the 102 specimens counted; parietals large, forming a straight suture behind the frontoparietal, a pair of large nuchals and temporals; 4, rarely 5 supraoculars, the anterior two in contact with the frontal; 8 superciliaries; eyelid with a transparent disk which is equal in length to the ear opening; large subocular, which is as long as any two of the four anterior upper labials; six lower labials; anterior and posterior loreals well developed; mental large, bordered by a small wedge-shaped first lower labial and a large postmental; first pair of chin-shields in contact, second pair separated by a small scale. Mid-body scale rows 29-33; only ninety specimens were counted, which shows a distribution as follows: 5 (29), 54 (30), 17 (31), 13 (32), 1 (33); an average of 30.5-; lamellae under the fourth toe 33-39, distributed as follows: 3 (33), 17 (34), 29 (35), 18 (36), 12 (37), 6 (38), 3 (39), an average of 35.24.

Mr. Reimschiüssel made colored drawings and reported the following concerning live specimens of this species: Identified by three yellow stripes on the back with yellow spots on sides. Young ones have a clear white tail, older ones a dirty white. On side of throat is a patch of orange color, underside white, as well as abdomen. The small scales of the head and sides have an iridescent sheen. Lays eggs and feeds on insects.

The yellow and orange colors have faded to white in the preserved specimens and the interspaces are dark brown to black, the ventral scales white. Many of the specimens, young, as well as adults, do not have the stripes, but are uniform light to dark brown.

The scales of the back and sides are slightly keeled with two to three short keels. About ten rows of scales on the back and the same

number of ventral ones are larger than the lateral scales. The legs, especially the back of the thighs, are spotted. The average body length is 50 mm. and tail 70 mm. BYU 7332 has a length of 137 (46 + 91) mm. The tail varies more than the body in length.

TYPE: BYU 7416, Morotai, December, 1944, E. Reimschiüssel.

Collected in the coral ledges where there is low vegetation. Mid-body scales 30, fourth toe lamellae 35, length 136 (56 + 80) mm. Uniform dark brown on head, back and tail, under color blackish on throat, belly and proximal portion of the tail, light colored on and around the legs.

PARATYPES: 80 specimens in the above series are designated as paratypes. Type and paratypes in the Herpetological Collection at Brigham Young University. Four paratypes, BYU 7334, 7424, 7508, and 7697 are deposited in the Stanford University Natural History Museum, California.

I am pleased to dedicate this new race to Mr. Reimschiüssel who worked so assiduously at collecting a large series of Morotai reptiles.

After an analysis of conclusions relative to the status of this species and its races by such workers as Brongersma, 1933; Burt & Burt, 1932; Kapstein, 1926; Loveridge, 1948; Mertens, 1930; Parker, 1925; Sternfeld, 1920; and Vogt, 1912; and in conjunction with results of my study of the Morotai specimens, I am convinced that the *caeruleocauda* race on this island is unnamed.

Loveridge has proposed that *caeruleocauda* of DeVis, 1892, be accepted as a valid species name for one of two species which have been confused under the name *L. cyanurum* as pointed out by Sternfeld and W. C. Brown. The Morotai specimens are clearly *caeruleocauda* as defined by Loveridge, but they differ in color, interparietal development, and more uniformity in mid-body scale rows, fourth toe lamellae and length of body and tail.

The characteristics of this subspecies are such that I have not been able to use any of the older names applied to species and subspecies of this complex.

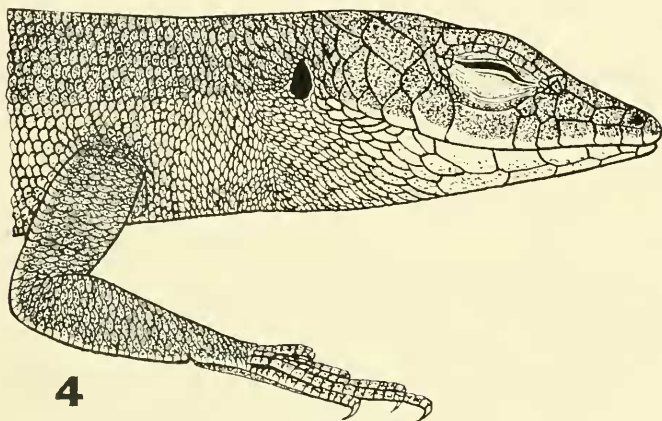
EMOIA KUEKENTHALI BOETTGER

Boettger, Zool. Anz. XVIII, 1895, p. 117.

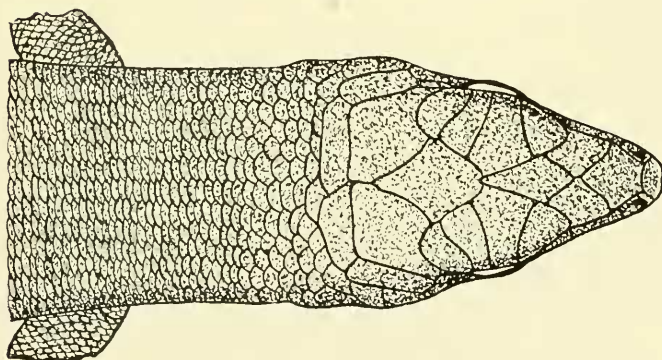
BYU 7648, 7784, 7732, 7825 Morotai (E. Reimschiüssel) January, 1945

Rostral broader than high, contacting the frontonasal with an arching suture; nostril surrounded by a well-developed supranasal, a nasal and postnasal; eyelid with a transparent disk; ear opening oval,

guarded by three small anterior lobules, larger than the lower eyelid disk; frontonasal broader than long; praefrontals longer than broad and in contact; parietals in contact behind the frontoparietal; no inter-



4



5

Figs. 4 and 5. *Emoia kuckenthalii* Boettger.
Side and dorsal view of head region. 3x.

parietal present; a pair of large nuchals and temporals; 4 supraoculars; 8 supraciliaries; 5 anterior labials before the large subocular; mental as broad as the rostral; submental longer than the mental; first pair of chin-shields in contact, second pair separated by a wedge-shaped scale; mid-body scale rows 42; fourth toe lamellae 52; total length BYU 7648, 167 (67 + 100) mm. Brown above with a black streak extending from the eye to above the shoulder; under color whitish;

dorsal scales with 4 to 5 keels, larger than the lateral ones; hind leg and toes reaching axilla; praeanal scales slightly enlarged.

The scalation of this species is accurately given in the accompanying figures 4 and 5.

EMOIA SOREX BOETTGER

Boettger, Zool. Anz. XVIII, 1895, p. 118.

BYU 7360, 7362,

7728-9 Morotai (E. Reimschiessel) December, 1944; January, 1945

Snout long and pointed; rostral broader than high; nostril between three scales, a supranasal, a nasal, and a postnasal; frontonasal in a diamond shape, slightly broader than long; praefrontals almost in contact, as broad as high; frontal as long as the frontoparietal, in contact with the two anterior supraoculars; a small interparietal, the parietals in contact behind it; a pair of nuchals and temporals; the palpebral disk larger than the ear opening; 8 lower labials, the fifth one is the large subocular; mental larger than the rostral, postmental large; mid-body scale rows 29; lamellae under the fourth toe 45-47; total length BYU 7728, 166 (53 + 113) mm.

Color above a lead grey intermixed with bluish scales; blue all along the lateral parts of the head, body and tail; under parts whitish, with a bluish green luster; scales smooth, large ones on the dorsal and ventral parts. Praeanal scales large.

This is one of the most beautiful species of *Lygosoma* yet studied from Morotai. Mr. Reimschiessel collected this species along with specimens of *L. c. reimschiesseli* and *L. novaequineae*.

SNAKES

Family TYPHLOPIDAE

TYPHLOPS FLAVIVENTER PETERS

Peters, Mon. Berl. Ac. 1864, p. 271.

BYU 7737-38 Morotai (E. Reimschiessel) December 14, 1944

This species was reported in my previous study, 1948.

Family BOIDAE

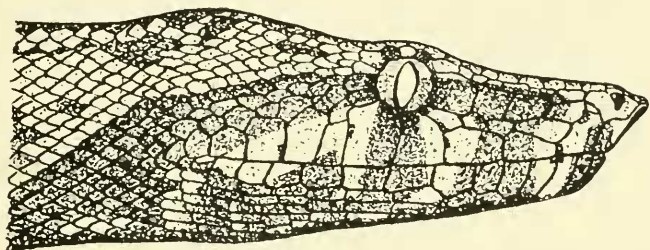
ENYGRUS CARINATUS (SCHNEIDER)

Schneider, Hist. Amph. II 1801, p. 261.

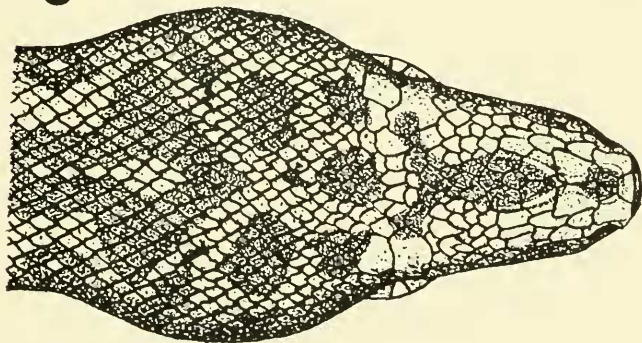
BYU 7384, 7478, 7484 Morotai (E. Reimschiessel) November, 1944
BYU 7783, 7794 Morotai (E. Reimschiessel) January, 1945

Snout prominent, mental closing on base of rostral which projects forward at an angle and is not visible from above; canthus rostralis well developed; nostril in the nasal; two larger scales over the right eye, one over the left; seven scales between the eyes; eyes bordered by 10–12 scales; 11 upper and 13 lower labials; 38 mid-body keeled scales; gastrosteges 178; urosteges 38; anal undivided. Color white with dark brown markings along the mid-dorsal and lateral area. Total length of specimen BYU 7384, 350 (304 + 46) mm.

Figures 6 and 7 give the color and scalation of the specimen described above.



6



7

Figs. 6 and 7. *Enygrus carinatus* (Schneider).
Side and dorsal view of head. 4x.

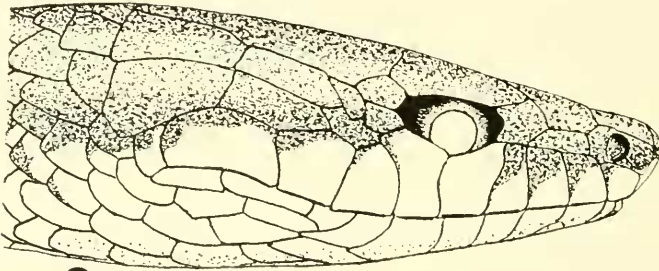
Family COLUBRIDAE

AHAETULLA CALLIGASTER CALLIGASTER (GUNTHER)

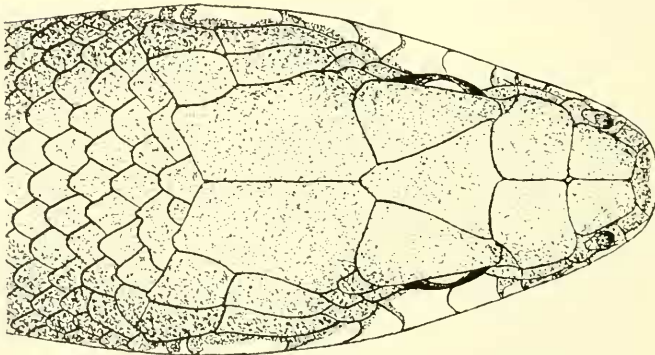
Gunther, Ann. Nat. Hist. (3) XX 1867, p. 53.

BYU 7479, 7480 Morotai (E. Reimschiüssel) December, 1944
BYU 7592, 7644 Morotai (E. Reimschiüssel) January, 1945

Rostral broader than high, visible from above in contact with the internasals, the latter not as broad or as long as the praefrontals; frontal shorter than the parietals; temporals 2 + 2; loreal 1; preocular 1; postoculars 3; 9 upper and 10 lower labials; 5 lower labials in contact with the anterior chin-shield; 13 rows of mid-body scales; gastroteges 195-196; urosteges 117-118; anal divided.



8



9

Figs. 8 and 9. *Ahaetulla c. calligaster* (Gunther)
Side and dorsal view of head. 3x.

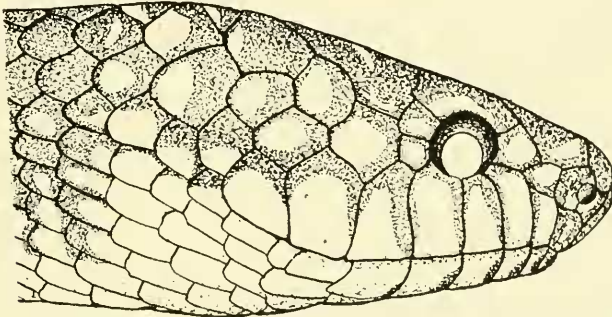
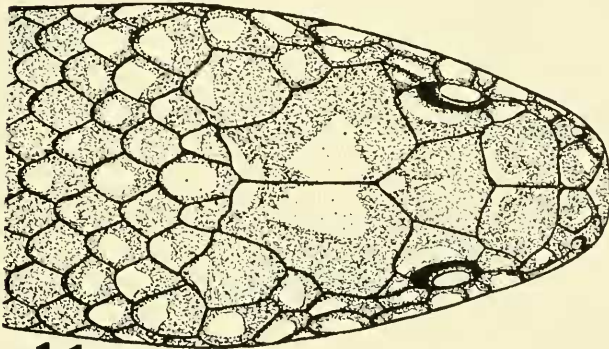
Total length of BYU 7480, 1338 (968 + 370) mm. Color black dorsal and ventral, except the chin, upper and lower labials which are white. See figures 8 and 9 for scalation and color of specimen BYU 7480.

TROPIDONOTUS TRUNCATUS (PETERS)

Peters, Mon. Berl. Ac., p. 399, 1863.

BYU 7783 Morotai (E. Reimschüssel) January 6, 1945

Rostral almost as high as broad, visible from above, making a broad straight suture with the internasals, which are smaller than the prae-frontals; frontal two-thirds the length of the parietals; loreal as broad as long; 2 prae- and 2 postoculars; temporals 1 + 1; 8 upper and 9 lower labials; 3 lower labials in contact with the first pair of chin-shields which are shorter than the posterior pair; 15 rows of mid-body scales; gastrosteges 155; urosteges 48; anal divided; total length 450 (370 + 80) mm.

**10****11**

Figs. 10 and 11. *Stegonotus batjanensis* (Gunther)
Side and dorsal view of head. 4x.

Color black above except for a white nuchal band and dark brown on head; ventral black except some white mottling on the chin, labial and anterior ventral scales. Mr. Reimschiüssel collected this specimen on January 6, 1945, in the timber near camp. It was black in color when alive.

This specimen has a greater number of gastrosteges, urosteges and

differs some in color from the descriptions given of *T. truncatus*. It may represent a new race, but more specimens should be available for critical study.

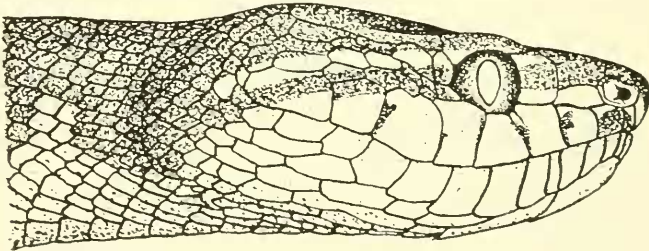
STEGONOTUS BATJANENSIS (GUNTHER)

Gunther, Ann. Nat. Hist. (3) XV 1865, p. 93.

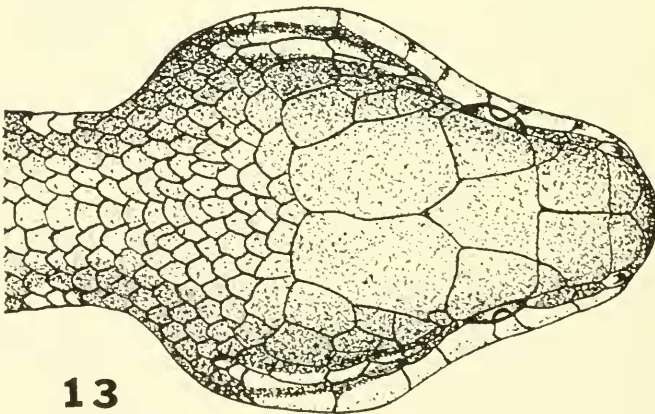
BYU 7482 Morotai (E. Reimschiüssel) December, 1944

Rostral broader than high, visible from above, making an arching contact with the internasals; the latter half the length of the praefrontals; frontal longer than the praefrontals; parietals large; loreal longer than deep; one praecular and two postoculars; temporals 1+1; 8 upper and 10 lower labials; 3 lower labials in contact with the anterior chin-shield; 17 rows of mid-body scales; gastrosteges 211; urosteges 74; anal divided. Total length 905 (700 + 205) mm.

Color above greyish brown; ventrals yellowish with greyish lateral margins; head and neck yellowish except for some grey on top of head. For head and color scalation see figures 10 and 11.



12



13

Figs. 12 and 13. *Boiga i. irregularis* (Merrem).
Side and dorsal view of head. 2x.

BOIGA IRREGULARIS IRREGULARIS (MERR.)

Merrem, Brchst. Uebers. Lacep. IX 1802, p. 239, pl. XXXVII, fig. 1.

BYU 7481, 7483, 7601, 7602 Morotai (E. Reimschiüssel) December, 1944
BYU 7731, 7821, 7869, 7900 Morotai (E. Reimschiüssel) February, 1945

Rostral broader than deep, visible from above; internasals shorter than the praefrontals, the latter broader than deep; 1 prae- and 2 post-oculars; 9 upper labials, with 4th, 5th, and 6th entering the eye; 12-13 lower labials, first five in contact with the anterior chin-shield, which are equal in length to the posterior pair; 19 mid-body rows of scales; gastrosteges 242-245; urosteges 102-112; anal entire; total length BYU 7869, 703 (545 + 158) mm.

Color grey above with dark transverse bands, a dark streak behind the eyes; upper labials and ventrals whitish. Reimschiüssel reports this species as being a burnt yellowish and brown with diagonal markings on the back. Two specimens taken from under a trash pile of coconuts, fronds and boards. The color markings of specimen BYU 7900 are shown in figures 12 and 13.

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